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EXAMINER	
LIU, JOSHUA C	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/017,021	YUTKOWITZ, STEPHEN J.	
	Examiner	Art Unit	
	Joshua C Liu	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/14/01*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 May 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

1. Claims 1-20 have been examined.

Drawings

2. New corrected drawings are required in this application because they are hand drawn and therefore difficult to understand and reproduce. Applicant is advised to employ the services of a competent patent draftsperson outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Objections

3. Claims 1-2, 5-6, 13-15, and 17 are objected to because of the following informalities:

- Claim 1 recites "a feedforward compensation parameter" on L. 3, which has antecedent basis.
- Claim 2 recites "the other feedforward compensation parameters" on L. 3, which has no antecedent basis.
- Claim 5 recites "that value" on L. 3, which is vague. The Examiner suggests "the each of the optimum values".
- Claim 5 recites "each of the optimum values" on L. 4, which has antecedent basis.
- Claim 5 recites "it" on L. 3, which is ambiguous. The Examiner suggests "the each of the optimum values".

- Claim 6 recites "the test motion" on L. 1, which has no antecedent basis. The Examiner suggests "the test motion routine".
- Claim 13 recites "an actuator" on L. 7, which has antecedent basis.
- Claim 14 recites "feedforward commands" on L. 9-10, which has antecedent basis.
- Claim 15 recites "controller" and "position command generator" on L. 3, both of which have antecedent basis.
- Claim 17 recites "feedforward command generator" and "feedforward tuning unit" on L. 2, both of which have antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. Claims 19-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to neither a "process" nor a "machine," but rather embraces or overlaps two different statutory classes of invention set forth in 35 U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claim 16 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which

was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

- Claim 16 recites a further limitation that the data communications protocol recited in claim 15 comprises hypertext transfer protocol, which is not disclosed in the specification.

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claim 3, 11-12, and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 3 recites on L. 2-3 that "the other feedforward compensation parameters comprise at least one of...", which is indefinite because the claim fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner suggests the Applicant use a Markush group to distinctly set forth the claim by replacing "the other feedforward compensation parameters comprise at least one of..." on L. 2-3 with "the other feedforward compensation parameters comprise at least one parameter selected from the group consisting of..."

10. The term "significant" in claim 11 is a relative term which renders the claim indefinite. The term "significant" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the

art would not be reasonably apprised of the scope of the invention. "Significant percentage change" on L. 4 renders the scope of claim 11 indefinite.

11. The term "substantial" in claim 12 is a relative term which renders the claim indefinite. The term " substantial " is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. "Substantial difference" on L. 4 renders the scope of claim 12 indefinite.

12. Claim 16 recites on L. 2 that "the communications protocol comprises hypertext transfer protocol", which is indefinite because the claim fails to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner suggests the Applicant use a Markush group to distinctly set forth the claim by replacing "the communications protocol comprises hypertext transfer protocol" on L. 2 with "the communications protocol consisting of hypertext transfer protocol".

13. Claim 19-20 are rejected under 35 USC 112 because claims 19-20 claim both an apparatus and the method step of using the apparatus.

A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. *In Ex parte Lyell*, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990), a claim directed to an automatic transmission workstand and the method steps of using it was held to be ambiguous and properly rejected under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims 1-5, 7, 10, 13-14, 17, and 19-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Satake et al (Japanese Patent Publication 08-006644; Published 1/12/1996).

Claim 1

Claim 1 recites

A method for tuning a feedforward compensation parameter in a notion control system, the method comprising:
a) determining an initial value of a feedforward compensation parameter;
b) commanding an initial movement of an actuator according to a test motion routine, wherein the initial value of the parameter is used in the control of the actuator;
c) determining error associated with the initial movement;
d) determining a potential value of the feedforward compensation parameter;
e) commanding a movement of the actuator according to the test motion routine, wherein the potential value of the parameter is used in the control of the actuator;
f) determining error associated with the movement commanded in act e);
g) comparing the errors associated with the movements;
h) based on the act of comparing the errors, selecting one of the values as a current best value; and
i) repeating acts d) - h) until the current best value is an optimum value, wherein the act of comparing the errors associated with the movements comprises comparing the errors associated with at least two of the movements.

Claim 1 is anticipated by Satake, wherein Satake teaches:

- A method of controlling tuning a feedforward compensation parameter in a motion control system (Satake Fig. 1; Detailed Desc. §2, "The block diagram... before processing."), the method comprising the steps of:

(a)-(c) See (Satake Detailed Desc. §2; Detailed Desc. §2, "The block diagram... main control unit."; Detailed Desc. §4, "The position control... and performs position control.");

(d)-(i) See (Satake Detailed Desc. §4, "In the numerical-control... aforementioned amendment torque value more."; Detailed Desc. §5, "The disturbance resulting from... can be stabilized."; Example §9, "In the case of the above-mentioned... of a homotopic (time) is chosen.").

Claim 2

Claim 2 recites "A method according to claim 1, wherein the feedforward compensation parameter being tuned is one of a plurality of feedforward compensation parameters, further comprising using optimum values determined for the other feedforward compensation parameters in the control of the actuator for the commanded movements".

- Regarding claim 2, see §102 rejection of claim 1, *supra*, and (Satake Detailed Desc. §5, "It is characterized... position detection value."; Example §Example, "Thus, if the above-mentioned... a main control unit.").

Claim 3

Claim 3 recites "A method according to claim 2, wherein the feedforward compensation parameter being tuned comprises (i) a time-shift parameter and the other feedforward compensation parameters comprise (ii) at least one of an acceleration feedforward gain, a Coulomb friction feedforward gain, a viscous friction feedforward gain, a constant offset feedforward gain, a proportional gain, and an integral gain".

- Regarding claim 3, see §102 rejection of claim 2, *supra*, and

(i) phase matching parameter (Satake Example §Example, "Filtering and amendment torque... the adder."; Example §7, "Moreover, since a noise component... SD is acquired."; Example §11, "This buffer memory... phase matching machine."); and

(ii) other parameters (Satake Detailed Desc. §7, "One is the disturbance torque... after computing real torque value."; Example §7, "One is the disturbance torque... after computing real torque value.").

Claim 4

Claim 4 recites "A method according to claim 2. further comprising determining the optimum values for the other feedforward compensation parameters prior to commanding any of the movements".

- Regarding claim 4, see §102 rejection of claim 2, *supra*, and (Satake Detailed Desc. §6, "In addition, the block... torque instructions value ST and the adder.").

Claim 5

Claim 5 recites "A method according to claim 4, wherein a user can determine for each of the optimum values determined for the other feedforward compensation parameters whether that value will be used during normal operation of the motion control system, further comprising temporarily using each of the optimum values determined for the other feedforward compensation parameters during the movements regardless of whether the user determined it should be used during normal operation of the motion control system".

- Regarding claim 5, see §102 rejection of claim 4, *supra*, and (Satake Detailed Desc. §6, "The feedforward gain... to a main control unit.").

Claim 7

Claim 7 recites "A method according to claim 1, wherein the acts of determining error comprises determining a following error".

- Regarding claim 7, see §102 rejection of claim 1, *supra*, and (Satake Example §10, "This function generating section... torque estimate STD is outputted.").

Claim 10

Claim 10 recites "A method according to claim 1, further comprising determining whether the current best value is the optimum value".

- Regarding claim 10, see §102 rejection of claim 1, *supra*, and (Satake Example §9, "In the case of the above-mentioned... of a homotopic (time) is chosen.").

Claim 13

Claim 13 recites

A method for tuning a compensation parameter in a motion control system having an actuator, wherein the motion control system utilizes a position command and a feedforward command to control motion of the actuator, and the compensation parameter compensates for time-shift relationships in the system, the method comprising:

a) determining an initial value of a feedforward compensation parameter;

b) commanding an initial movement of an actuator according to a test motion routine, wherein the initial value of the parameter is used in the control of the actuator;

c) determining error associated with the initial movement;

d) determining a potential value of the feedforward compensation parameter;

e) commanding a movement of the actuator according to the test motion routine, wherein the potential value of the parameter is used in the control of the actuator;

f) determining error associated with the movement commanded in act e);

g) comparing the errors associated with the movements;

h) based on the act of comparing the errors, selecting one of the values as a current best value; and

i) repeating acts d) - h) until the current best value is an optimum value, wherein the act of comparing the errors associated with the movements comprises comparing the errors associated with at least two of the movements.

Claim 13 is anticipated by Satake, wherein Satake teaches:

- A method of controlling tuning a feedforward compensation parameter in a motion control system (Satake Fig. 1; Detailed Desc. §2, "The block diagram... before processing.") having actuators (Satake Fig. 1 Elements 9 and 12-13; Fig. 8 Element 81; Detailed Desc. §2, "The block diagram... before processing."), the method comprising the steps of:

  (a)-(c) See (Satake Detailed Desc. §2; Detailed Desc. §2, "The block diagram... main control unit."; Detailed Desc. §4, "The position control... and performs position control.");

  (d)-(i) See (Satake Detailed Desc. §4, "In the numerical-control... aforementioned amendment torque value more."; Detailed Desc. §5, "The disturbance resulting from... can be stabilized."; Example §9, "In the case of the above-mentioned... of a homotopic (time) is chosen.").

Claim 14

Claim 14 recites

A motion control system comprising:
a) a position command generator adapted to produce position commands;
b) a feedforward command generator adapted to produce feedforward commands based upon feedforward compensation parameters, wherein one of the feedforward compensation parameters comprises a time-shift compensation parameter that compensates for time-shift relationships in the system;
c) a controller adapted to communicate with an actuator, the position command generator, and the feedforward command generator, and adapted to control the motion of the actuator based upon the position commands and feedforward commands; and
d) a feedforward tuning unit adapted to:
i) determine an initial value of the time-shift compensation parameter;
ii) cause the position command generator to produce position commands according to a test motion routine, wherein the initial value of the time-shift compensation parameter is used in the control of the actuator and the actuator undergoes an initial movement;
iii) determine error associated with the initial movement;
iv) determine a potential value of the time-shift compensation parameter;

v) cause the position command generator to produce position commands according to the test motion routine, wherein the potential value of the tune-shift compensation parameter is used in the control of the actuator and the actuator undergoes movement;

vi) determine error associated with the movement wherein the potential value was used in the control of the actuator;

vii) compare the errors associated with the movements;

viii) select one of the values as a current best value based on the comparison; and

ix) repeat actions in iv) - viii) until the current best value is an optimum value, wherein the feedforward tuning unit compares the errors associated with at least two of the movements.

Claim 14 is anticipated by Satake, wherein Satake teaches:

- A numerical controller for controlling tuning a feedforward compensation parameter in a motion control system (Satake Fig. 1; Detailed Desc. §2, "The block diagram... before processing.") comprising:

(a) See (Satake Fig. 1 Element 1)

(b) See (Satake Fig. 1 Elements 4-5)

(c) See (Satake Fig. 1 Elements 2 and 8)

(d) See (Satake Fig. 1 Element 3)

(i)-(iii) See (Satake Detailed Desc. §2; Detailed Desc. §2, "The block diagram... main control unit."; Detailed Desc. §4, "The position control... and performs position control.");

(iv)-(ix) See (Satake Detailed Desc. §4, "In the numerical-control... aforementioned amendment torque value more."; Detailed Desc. §5, "The disturbance resulting from... can be stabilized."; Example §9, "In the case of the above-mentioned... of a homotopic (time) is chosen.").

Claim 17

Claim 17 recites "A motion control system according to claim 14, wherein the position command generator, feedforward command generator, and feedforward tuning

unit are incorporated within a computer numerical control unit and the controller comprises a servocontroller".

- Regarding claim 17, see §102 rejection of claim 14, *supra*, and (Satake Detailed Desc. §1, "This invention relates to... of a machine tool."; Detailed Desc. §4, "In the numerical-control equipment... amendment torque value more.").

Claim 19

Claim 19 recites "A computer readable medium comprising instructions for performing the method of claim 1."

Claim 19 is anticipated by Satake, wherein Satake teaches:

- A method of controlling tuning a feedforward compensation parameter in a motion control system which involves only manipulating inputted signals (Satake Fig. 1 Elements 1-8 and 12-15; Detailed Desc. §2, "The block diagram... before processing."), the method comprising the steps of:

  (a)-(c) See (Satake Detailed Desc. §2; Detailed Desc. §2, "The block diagram... main control unit."; Detailed Desc. §4, "The position control... and performs position control.");

  (d)-(i) See (Satake Detailed Desc. §4, "In the numerical-control... aforementioned amendment torque value more."; Detailed Desc. §5, "The disturbance resulting from... can be stabilized."; Example §9, "In the case of the above-mentioned... of a homotopic (time) is chosen.").

Claim 20

Claim 20 recites "A computer readable medium comprising instructions for performing the method of claim 13."

Claim 20 is anticipated by Satake, wherein Satake teaches:

- A method of controlling tuning a feedforward compensation parameter in a motion control system which involves only manipulating inputted signals (Satake Fig. 1 Elements 1-8 and 12-15; Detailed Desc. §2, "The block diagram... before processing.") and having actuators (Satake Fig. 1 Elements 9 and 12-13; Fig. 8 Element 81; Detailed Desc. §2, "The block diagram... before processing."), the method comprising the steps of:

  (a)-(c) See (Satake Detailed Desc. §2; Detailed Desc. §2, "The block diagram... main control unit."; Detailed Desc. §4, "The position control... and performs position control.");

  (d)-(i) See (Satake Detailed Desc. §4, "In the numerical-control... aforementioned amendment torque value more."; Detailed Desc. §5, "The disturbance resulting from... can be stabilized."; Example §9, "In the case of the above-mentioned... of a homotopic (time) is chosen.").

Claim Rejections - 35 USC § 103

16. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

17. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satake et al (Japanese Patent Publication 08-006644; Published 1/12/1996) in view of McCracken et al (US Patent Number 5,029,143; Issued 7/2/1991).

Claim 6

Claim 6 recites "A method according to claim 1, wherein the test motion is associated with a swept sine chirp waveform."

- Regarding claim 6, see §102 rejection for claim 1. However, Satake does not teach that the test motion is associated with a swept sine chirp waveform. McCracken teaches a method for simulating real-life acoustics motion by using a sine wave with chirp characteristics (McCracken Col 1 L. 53-55, "The chirp-like... sine wave carrier."), which accurately simulates real life condition (McCracken Col 1 L. 55-59, "A controlled modulation... a real life condition."). Therefore, it would have been obvious to one of ordinary skill in the art to modify Satake, in view of McCracken, by utilizing a test motion associated with a swept sine chirp waveform.

18. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satake et al (Japanese Patent Publication 08-006644; Published 1/12/1996) in view of Hansen et al (US Patent Number 5,587,896; Issued 12/24/1996).

Claim 8

Claim 8 recites "A method according to claim 1, wherein the act of comparing the errors comprises comparing a root mean squared value of each of the errors."

- Regarding claim 8, see §102 rejection for claim 1. However, Satake does not teach that the act of comparing the errors comprises comparing a root mean squared value of each of the errors. Hansen teaches a method for determining the noise band of a self-tuning controller by calculating the root mean square value of the measured noise (Hansen Col 8 L. 50-58, "The new peak-to-peak... allowed to increase."), in order to make sure that the test loop was neither overdamped or underdamped when the noise band is allowed to increase (Hansen Col 8 L. 50-58, "The new peak-to-peak... allowed to increase."). Therefore, it would have been obvious to one of ordinary skill in the art to modify Satake, in view of Hansen, by utilizing a root mean squared value of each of the errors when comparing the errors.

19. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satake et al (Japanese Patent Publication 08-006644; Published 1/12/1996) in view of Bieg et al (US Patent Number 6,519,860; Filed 10/19/2000).

Claim 9

Claim 9 recites "A method according to claim 1, wherein the act of determining a potential value for the feedforward compensation parameter comprises using a technique based on a minimization algorithm to determine the potential value."

- Regarding claim 9, see §102 rejection for claim 1. However, Satake does not teach that the act of determining a potential value for the feedforward compensation parameter comprises using a technique based on a minimization algorithm to determine the potential value. Bieg teaches a method for

determining the kinematic parameters during calibration of an articulated coordinate measuring machine by using minimization algorithm (Bieg Col 17 L. 13-34, "Calibration of the ACMM... for the device."), which accurately generates the best-fit parameters (Bieg Col 1 L. 29-32, "Then, by using... the workspace."). Therefore, it would have been obvious to one of ordinary skill in the art to modify Satake, in view of Bieg, by utilizing a technique based on a minimization algorithm to determine the potential value when determining a potential value for the feedforward compensation parameter.

20. Claims 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satake et al (Japanese Patent Publication 08-006644; Published 1/12/1996) in view of Marshall et al (US Patent Number 5,587,896; Issued 3/28/1989).

Claim 11

Claim 11 recites

A method according to claim 10, wherein the act of determining whether the current best value is the optimum value comprises:
a) identifying which of the values is a second best value;
b) determining whether there is a significant percentage change between the second best value and the current best value.

- Regarding claim 11, see §102 rejection for claim 10. However, Satake does not teach identifying the second best value and determining whether there is a significant percentage change between the second best value and the current best value. Marshall teaches a method for identifying the second best value and determining whether there is a significant percentage change between the second best value and the current best value (Marshall Fig. 8C Step 231; Col 3

L. 25-45, "Provisions are made... of error criteria."; Col 4 L. 24-29, "Lastly, the minimum... of error criteria."; Col 14 L. 29-34, "The second minimum... come to a stop."), in order to provide a confidence value of a correct match (Marshall Col 14 L. 59-68, "The second minimum... be in error."). Therefore, it would have been obvious to one of ordinary skill in the art to modify Satake, in view of Marshall, by identifying the second best value and determining whether there is a significant percentage change between the second best value and the current best value.

Claim 12

Claim 12 recites

A method according to claim 10, wherein the act of determining whether the current best value is the optimum value comprises:
a) identifying which of the values is a second best value; and
b) determining whether there would be any substantial difference between using the current best value and the second best value.

- Regarding claim 12, see §102 rejection for claim 10. However, Satake does not teach identifying the second best value and determining whether there is a significant percentage change between the second best value and the current best value. Marshall teaches a method for identifying the second best value and determining whether there is a substantial difference between using the second best value and the current best value (Marshall Fig. 8C Step 231; Col 3 L. 25-45, "Provisions are made... of error criteria."; Col 4 L. 24-29, "Lastly, the minimum... of error criteria."; Col 14 L. 29-34, "The second minimum... come to a stop."), in order to provide a confidence value of a correct match (Marshall Col 14 L. 59-68, "The second minimum... be in error."). Therefore, it would have been obvious to one of ordinary skill in the art to modify Satake, in view of Marshall, by identifying

the second best value and determining whether there is a substantial difference between using the second best value and the current best value.

21. Claims 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Satake et al (Japanese Patent Publication 08-006644; Published 1/12/1996) in view of Wallace et al (US Patent Number 6,564,121; Filed 9/22/1999).

Claim 15-16

Claim 15 recites "A motion control system according to claim 14, wherein the feedforward tuning unit is adapted to communicate with at least one of the actuator, controller, position command generator, and the feedforward command generator via a data communication network and in compliance with a communications protocol."

Claim 16 recites "A motion control system according to claim 15, wherein the communications protocol comprises hypertext transfer protocol."

- Regarding claims 15-16, see §102 rejection for claim 14. However, Satake does not teach that the feedforward tuning unit is adapted to communicate with at least one of the actuator, controller, position command generator, and the feedforward command generator via a data communication network and in compliance with a communications protocol. Satake also does not teach that the communications protocol consists of hypertext transfer protocol. Lee teaches that using a communicate protocol to communicate over a data communication network via hypertext transfer protocol (Wallace Col. 2 L. 17-23, "The remote control... (HTTP).") –allows for remote control of an actuator, controller, or dispenser (Wallace Col. 2 L. 30-35, "The systems and method... controlled substance.").

Therefore, it would have been obvious to one of ordinary skill in the art to modify Satake, in view of Lee, by adapting the feedforward tuning unit to communicate with at least one of the actuator, controller, position command generator, and the feedforward command generator via a data communication network and in compliance with a communications protocol such as hypertext transfer protocol.

22. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Satake et al (Japanese Patent Publication 08-006644; Published 1/12/1996) in view of Lee et al (Reference U; Published 8/1996).

Claim 18

Claim 18 recites "A motion control system according to claim 14, wherein the feedforward tuning unit comprises a finite state machine."

- Regarding claim 18, see §102 rejection for claim 14. However, Satake does not teach that the feedforward tuning unit comprises a finite state machine. Lee teaches that using a finite state machine to model electronic systems (Lee Pg. 1090 Col 1-2, "I. Introduction... discover aspects of their behavior."), in order to ensure correct functioning of systems and discover aspects of their behavior (Lee Pg. 1090 Col 1-2, "I. Introduction... discover aspects of their behavior."). Therefore, it would have been obvious to one of ordinary skill in the art to modify Satake, in view of Lee, by incorporating a finite state machine in the feedforward tuning unit.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joshua C Liu whose telephone number is (703) 305-6435. The examiner can normally be reached on Monday-Friday, 8:30am-5:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anil Khatri can be reached on (703) 305-0282. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

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ANIL KHATRI
SUPERVISORY PATENT EXAMINER